

## REMARKS

In summary, claims 2, 7-9, 13, 15, 19, 21, 25, 27, 31, 33-35, and 38-78 are pending. Claims 2, 7-9, 25, 27, 31, 33-35, 38-44, and 63-78 are withdrawn from consideration. Claims 45 and 54 are objected to. Claims 13, 19, 45, 52-54, 61, and 62 are rejected under 35 U.S.C. § 102. Claims 15, 21, 46-51, and 55-60 contain allowable subject matter but are objected to as being dependent upon a rejected base claim. Applicant respectfully traverses the rejection of claims 13, 19, 45, 52-54, 61, and 62. Claims 45, 46, 48, 54, 55, and 57 are herein amended. No new matter is added.

### Claim Objections

Claims 45 and 54 are objected to because of a perceived informality. To improve readability, claims 45 and 54 are amended to remove the recitation: “one of: reducing the lamp light output level to said low lamp light output level; and.” Claims 45 and 54 are amended for purposes of improved readability and not for purposes of patentability. Because claims 45 and 54 have been amended to remove the recitation: “one of: reducing the lamp light output level to said low lamp light output level; and,” it is requested that the objection to claims 45 and 54 be reconsidered and withdrawn.

### Amendments for Readability

Dependent claims 46, 48, 55, and 57 are also amended to improve readability. Claims 46, 48, 55, and 57 are amended for purposes of improved readability and not for purposes of patentability.

### Claim Rejections - 35 U.S.C. §102

Claims 13, 19, 45, 52-54, 61, and 62 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,351,080, issued to Birk *et al.* (Birk *et al.*).

Applicant’s claimed invention provides a mechanism for dimming a gas discharge lamp to a low light output level without perceptible flicker. This is particularly applicable to gas discharge lamps operating at high temperatures. At high temperatures, the light tends to

flicker when the lamp is suddenly reduced to a low light output level. In one embodiment, the gas discharge lamp is operated at an intermediate light output level prior to operating the gas discharge lamp at the low light output level. For example, upon receiving a request to dim the gas discharge lamp to 1% of its nominal output light level, the ballast controls the lamp to provide light within a range of approximately 2% to 5% of the compact gas discharge lamp's nominal light output level until the temperature of the gas discharge lamp fixture drops below a threshold temperature. Because the lamp temperature does not change instantaneously, the lamp is operating at the intermediate light output level at a higher than rated temperature. However, no flicker is perceptible at the intermediate light output level at the higher temperature. Upon cooling, the gas discharge lamp is operated at the low light output level. Because the temperature is lower, the light does not flicker at the low light output level. Furthermore, no perceptible difference is noticed between dimming the lamp from its nominal light output level to the intermediate light output level and dimming the lamp from its nominal light output level to the low light output level. Once the lamp has cooled to the threshold temperature, dimming the lamp from the intermediate light output level to the low light output level also is not perceptible. The overall result is a gas discharge lamp and ballast system that can be dimmed from its nominal light output level to a low light output level (e.g., approximately 1% of its nominal level) with no perceivable flicker.

Birk *et al.* neither discloses nor suggests “an intermediate lamp light output level” as recited in independent claims 45 and 54.

Birk *et al.* teaches a circuit arrangement for dimming a fluorescent lamp by switching on and off the supply voltage of the fluorescent lamp. (Abstract; column 1, lines 6-8, 26-32). The object of Birk *et al.* is to provide this capability with circuitry that is less complicated than prior art circuits. (Column 1, lines 6-36). Birk *et al.* teaches that a desired brightness of the fluorescent lamp is achieved by adjusting parameters of the circuitry to directly provide the desired brightness. Nowhere does Birk *et al.* disclose or suggest adjusting the circuitry to achieve “an intermediate lamp light output level” prior to achieving the desired brightness. The dimming operation of the fluorescent lamp is controlled by the dimming frequency, f2, and more specifically, the pulse width, W2, of the dimming frequency. (Column 3, lines 22-

27). A desired brightness is achieved simply by adjusting the circuitry to provide the corresponding pulse width. (Column 3, lines 27-31). The pulse width can be adjusted manually or automatically as a function of ambient brightness. (Column 3, lines 27-31). Birk *et al.* also teaches that individual pulse width values for different desired brightnesses and/or temperatures can be stored for access by the dimming circuitry. (Column 4, lines 52-56). Thus, in contrast to teaching “an intermediate lamp light output level,” all teachings of Birk *et al.* are directed to adjusting the dimming circuitry to directly provide the desired brightness, whether manually or automatically.

With respect to claims 13 and 19, Birk *et al.* neither discloses nor suggests a “compact gas discharge lamp,” as recited in claims 13 and 19. Birk *et al.* discloses only a fluorescent lamp. As described in Applicant’s application, “[c]ompact gas discharge lamps differ from conventional gas discharge lamps in that they are constructed of smaller diameter tubing, typically having an outside diameter of less than about five-eighths of an inch. Also, the lamps are compact in part because the tubing has one or more small radius bends that allow the tube to fold back on itself in such a manner as to achieve a compact shape. Additionally, in compact gas discharge lamps wherein the tube is folded back on itself, the lamp ends typically are in close proximity to each other.” (Page 1-2, paragraph 0003). Nowhere does Birk *et al.* teach or suggest any of the above characteristics of a compact gas discharge lamp.

Because Birk *et al.* neither discloses nor suggests “an intermediate lamp light output level,” and because Birk *et al.* neither discloses nor suggests a “compact gas discharge lamp,” it is requested that the rejection of claims 13, 19, 45, 52-54, 61, and 62 under 35 U.S.C. § 102 be reconsidered and withdrawn.

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**PATENT**

**Conclusion**

In view of the foregoing arguments, remarks, and amendments, it is submitted that this application is in condition for allowance. Reconsideration of this application and an early Notice of Allowance are requested. In the event that the Examiner cannot allow this application for any reason, the Examiner is encouraged to contact the undersigned attorney to discuss resolution of any remaining issues.

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